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A CLASSIFICATION OF CERTAIN CHIPPED IMPLEMENTS

PART I

DEVELOPED FOR THE RESEARCH COUNCIL OF THE MASSACHUSETTS ARCHAEOLOGICAL
SOCIETY BY THE ARTIFACT CLASSIFICATION COMMITTEE

BENJAMIN L. SMITH, CHAIRMAN

ADOPTED BY
THE RESEARCH COUNCIL
FEBRUARY 1950

FOREWORD

The chairman of the Artifact Classification Committee wishes to thank the following persons who gave many hours to the research necessary in the solution of this intricate problem.

Mr. Ripley P. Bullen who cheerfully assisted in the modification, rearrangement, and development of the system which he had devised which had been adopted by the Massachusetts Archaeological Society and published in its Bulletin of April 1943. Mr. Bullen and your chairman spent many hours in discussing the problem, in arranging and classifying specimens, and in preparing preliminary drawings.

Maurice Robbins, Chairman of the Research Council and Director of the Museum of the Society, who tested the classification system by applying it to several thousand specimens from the Richardson collection at the Museum of the Society in Attleboro.

William S. Fowler who assisted Mr. Robbins in testing the system, made many indicated changes in outlines and arrangement, and prepared the final drawings for this publication. Mr. Fowler's proposed modification of the Bullen System has been, for the most part, incorporated in the following report.

A REPORT TO THE MEMBERS OF THE MASSACHUSETTS ARCHAEOLOGICAL SOCIETY

At a meeting of the Research Council held at Attleboro on January 11, 1947, President W. Elmer Ekblaw appointed the undersigned chairman of a sub-committee to be known as the Artifact Classification Committee. To this sub-committee was assigned the problem of devising a classification system for chipped objects including "scrapers, knives, choppers celts, and hoes.

Various attempts were made to treat this group of objects as a unit and to study it as such, but it quickly became apparent that each division would have to be considered individually and that the rudimentary form, projectile and spear points, must be added.

* These definitions are functional, and are therefore open to question. However, since the terms are in general use, the following attempt has been made to describe them.

Seven major divisions of these objects was recognized as follows:

- Class I Flakes or Chips
- * Class II Scrapers
- * Class III Knives
- * Class IV Projectile Points
(arrow and spear points)
- * Class V Choppers
- * Class VI Hoes
- Class VII Celts

Class I. - A. The Flake

Definition: A flake is that portion of a stone core which has been struck off by one of the several well known methods, and which exhibits one smooth convex surface, and a sharp edge, the result of a conchoidal fracture. The flake may show primary chipping on one face only. The reverse side must be that characteristic of the fracture peculiarities of the stone itself. The shape may be triangular, ovate, elongate, circular, etc.

not have been designed for hafting. It may be of any size, shape, or thickness.

The scraper group may be broken down as follows:

A - The Flake or Chip Scraper

This artifact is a flake or chip of any size, shape, or thickness, on which some portion of its circumference has been retouched so as to produce a strong beveled working edge.

Class I - B. The Retouched or Utilized Flake

Definition: The same as the above, except for the addition of the retouching or secondary chipping done to improve or modify the working edge. The secondary chipping may have been done from one or both sides.

B - The "Thumbail" Scraper

A small, oval, egg shaped, or round, thin chip which has been retouched around a portion or all of its circumference so as to produce a stronger beveled edge.

Class II. - The Scraper

Definition: This artifact is, as its name implies, a tool used for scraping the surface of various materials. The size, shape, thickness, and type of edge varies to conform to the work required. The principal characteristic of a scraper is its working edge and it is thought best to limit the use of the term scraper to that group of tools in which the principal working surface is chipped on one side only so as to produce a sharp, strong, edge. The scraper may be distinguished from the retouched flake by the acute angle of its working edge. It may or may not have been chipped into symmetrical shape. It may or may

C - Steepedged Scraper

This type is usually (though not always) small. It is made from a chip which has a pronounced thickness at one point of its circumference. It will have been chipped so as to produce a very strong, thick, edge with the bevel at an angle of 60 to 75 degrees.

These scrapers frequently have an egg shaped outline with the working edge on the curve with the longest radius.

D - Stemmed Scraper

This type of scraper does not occur frequently. It often appears to have been made from a broken projectile or spear point, although this is not a necessary characteristic. This scraper can be of

any size, shape, or thickness, but must possess a stem for hafting. The stem or base may be described by use of the projectile point classification system.

Note: Various writers have called attention to scrapers in which the working edges are chipped from both faces. We have chosen to classify this type of implement as a knife.

If desired, scrapers may be further divided into groups according to geometric outline and relative thickness as follows:

<u>OUTLINE</u>	<u>THICKNESS</u>
1. Square	a. Thin - Thickness less than the radius of the mean circumference.
2. Rectangular.	
3. Triangular.	b. Thick - Thickness equal to the radius of the mean circumference.
4. Circular.	
5. Ovate.	c. Conical - Thickness greater than the radius of the mean circumference (Turtle-backs)
6. Semi-lunar.	
7. Asymmetrical.	

Scrapers thus may be described as follows: II A 4a, or II B 5a, or II C 2a, or II C 2b, or II C 5c.

Class III. - The Knife

The name of this class is functional. As a knife and a projectile or spear point are similar implements and a given blade may often have performed any or all of these functions, some particular characteristic must be selected as diagnostic of a knife.

We have chosen to place in this class only those blades which have sides of a different curvature so that the point of the implement will appear off center to a degree which appears to be intentional, or those blades in which the stem appears to be intentionally offset.

Since, with the exception of these two characteristics, knives and projectile or spear points can be identical, it follows that the same classification system can be used for each. It is understood that a knife is a blade which has been made from a flake removed from a core and chipped on at least one of its sides so as to produce a cutting edge.

From this rudimentary stage, knives progress to the finest type of stemmed chipped blades as follows:

Type I. Irregular worked blades with secondary chipping on one surface and one edge.

Type II. Irregular blades with a secondary chipping on one surface and two edges.

Type III. Irregular blades with secondary chipping on both surfaces and two edges.

Type IV. Blades without stem, with secondary chipping on both surfaces.

1. Circular.
2. Ovate.
3. Semi-lunar.
4. Trianguloid.
5. Rectangular.
6. Square.

Type V. Stemmed blades resembling projectile points but with an offset point.

Type VI. Stemmed blades resembling projectile points but with an offset stem.

Type VII. Stemmed blades resembling projectile points but with both offset stem and point.

Type V, VI, VII, can be classified by the projectile point system by simply designating the type and adding the term knife, thus Knife Type VIII, Blade M, Lanceolate, Offset 10°, Stem, corner notched 3, offset 15°.

Class IV. - Projectile and Spear Points

Several classification systems have been devised to describe this type of implement. Dr. Warren K. Moorehead proposed a diagram in which he assigned names to the several parts of the blade. A very similar diagram was produced by J. Joe Finklestein (Am. Antiquity Vol. II. No. 3, p. 197); Glenn Black and Paul Weir set up a classificatory nomenclature for irregular geometric forms (Ibid Vol. I, No. 4, p. 280-294); the ultimate in precision and detail which has come to our attention is found in a system proposed by Andrew H. Whiteford (Ibid Vol. XII, No. 4, p. 226-239); Frederick Johnson developed an excellent system which has not been published but which was hectographed for the use of this committee; and a system proposed by Ripley P. Bullen was adopted by the Society and published in our Bulletin Vol. IV, No. 3, pages 45-48.

It has long been suggested that a modification of this previous classification system (the Bullen System) be undertaken by the Research Council. William S. Fowler, in a letter to the chairman dated January 29, 1947, made several suggestions which have been taken into consideration in devising the following system.

The system has been thoroughly tested by the staff of your Society Museum, has been examined and discussed in detail by the members of the Research

Council, and adopted for the general use of the Society. It is hoped that our members will make use of this system so that in the future we shall readily understand the exact type of point described in a given article or listed in our Society Site Survey.

Figure 23 is a simplified form of Projectile Point nomenclature, Figure 24 and 25 the Classification System proper.

Respectfully submitted

Artifact Classification Committee
of the Research Council
Benjamin L. Smith, Chr.

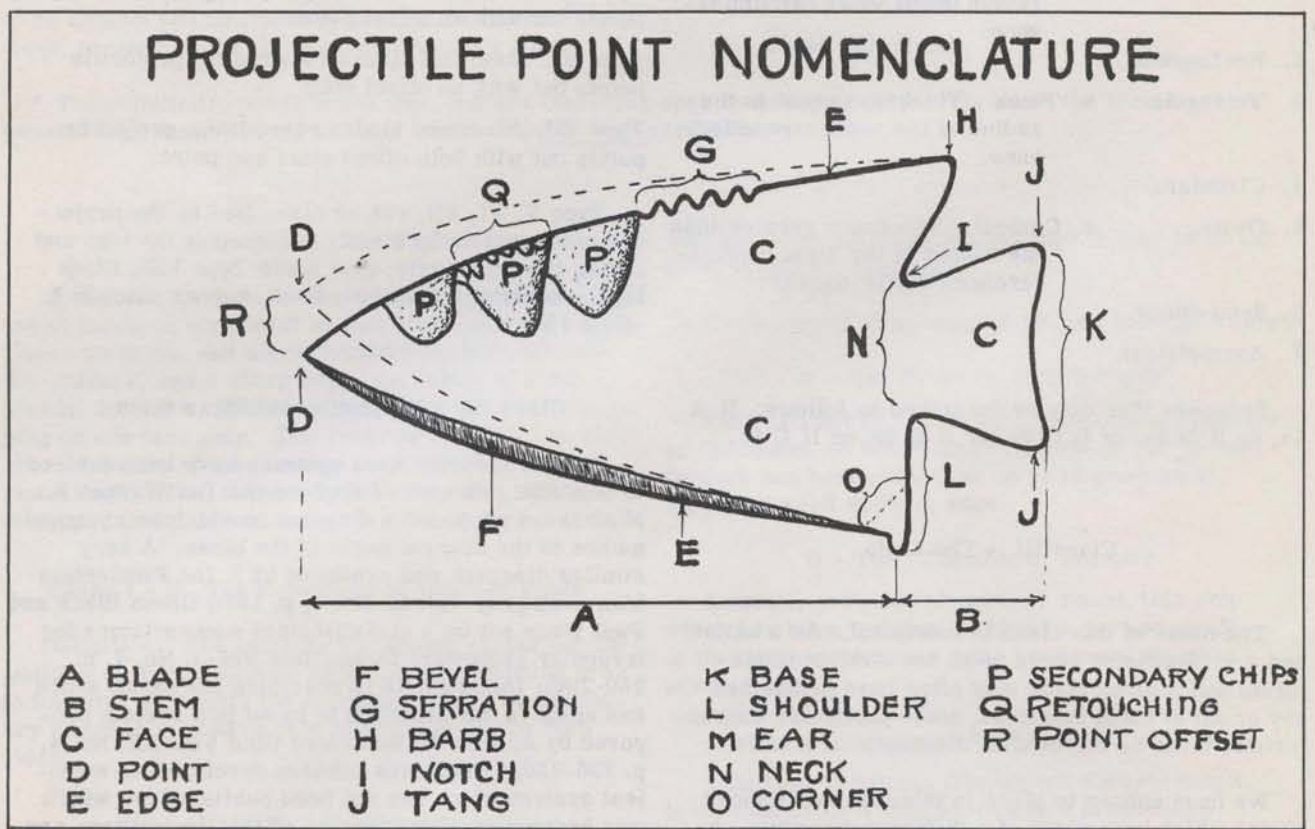


FIGURE 23

PROJECTILE POINT CLASSIFICATION

TRIANGULAR FORMS

INSTRUCTIONS: *Select point type by number; add size letter; add base letter, if base differs from usual type as shown. Classification example—(Triangular 6Sb).*

TRIANGULAR TYPES

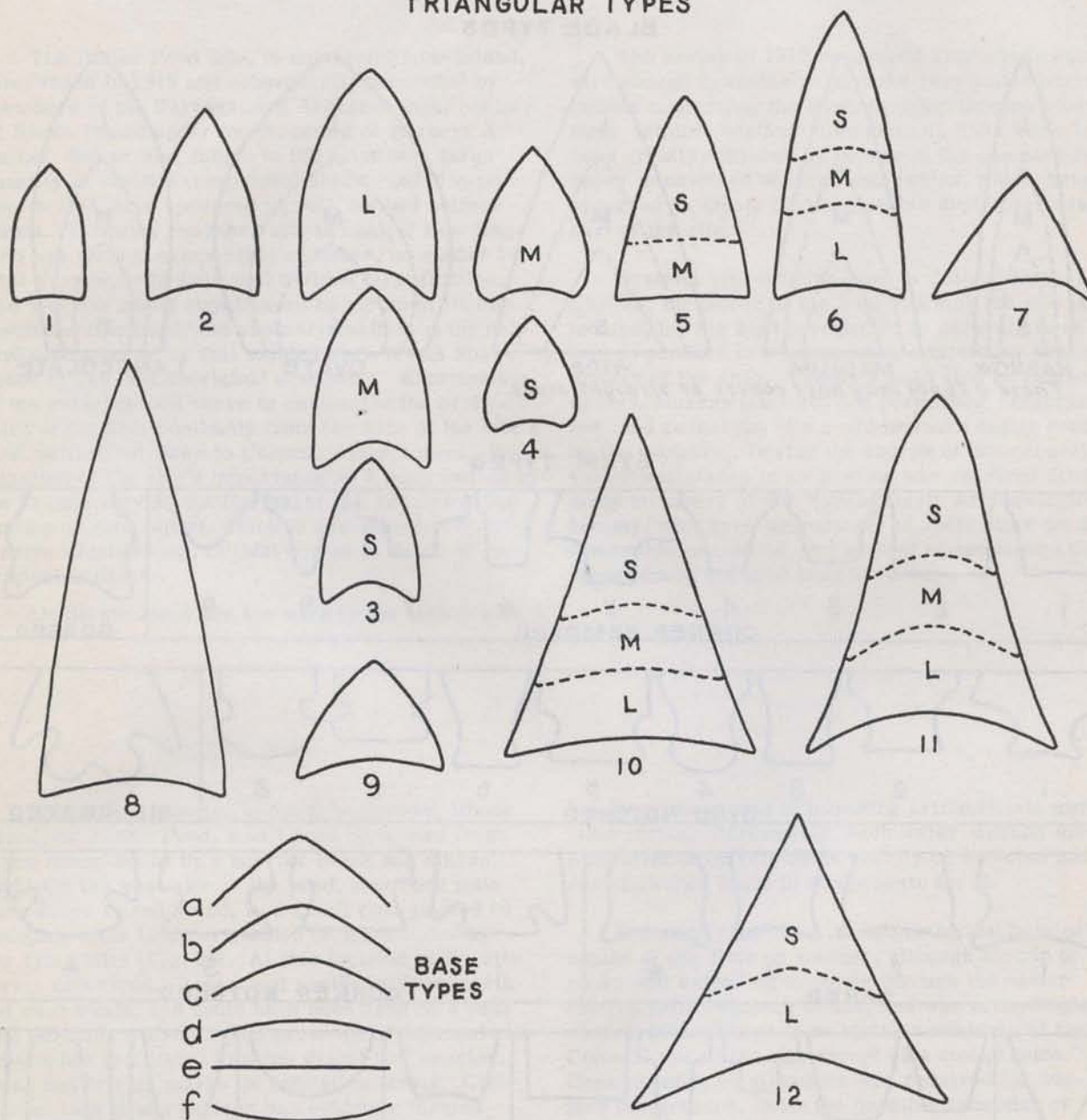


FIGURE 24

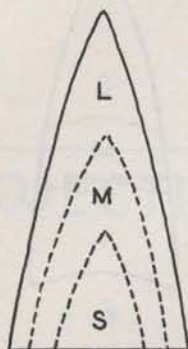
PROJECTILE POINT CLASSIFICATION STEMMED FORMS

INSTRUCTIONS: *Select blade type by name; add size letter; add stem type by name and number. Select nearest shape to your variation. Do not try to classify odd shapes with this chart. If a blade is longer than 2 1/2 inches, call it a spear. Classify asymmetrical blades as knives. Classification example - (Narrow S Corner Removed 3).*

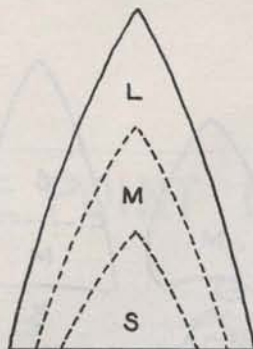
BLADE TYPES



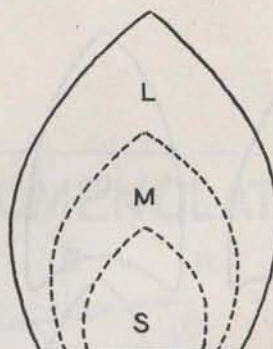
NARROW



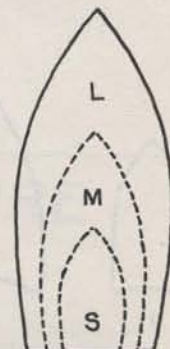
MEDIUM



WIDE



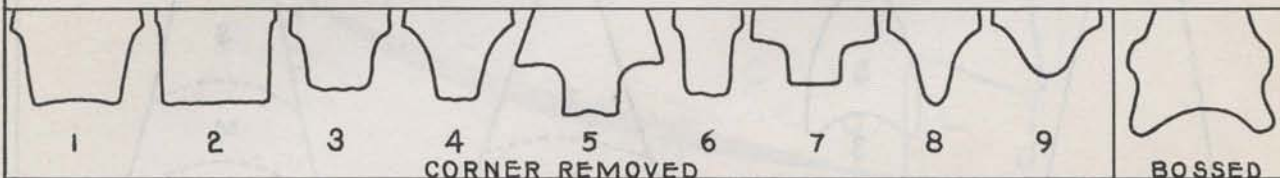
OVATE



LANCEOLATE

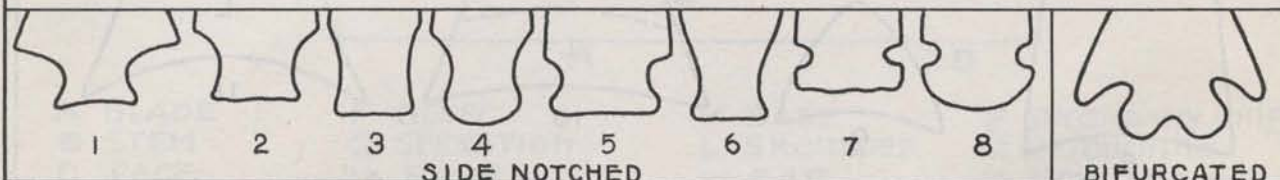
These 3 types may have convex or straight sides.

STEM TYPES



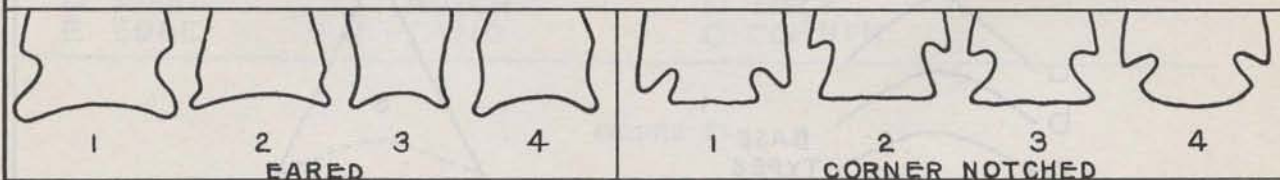
CORNER REMOVED

BOSSED



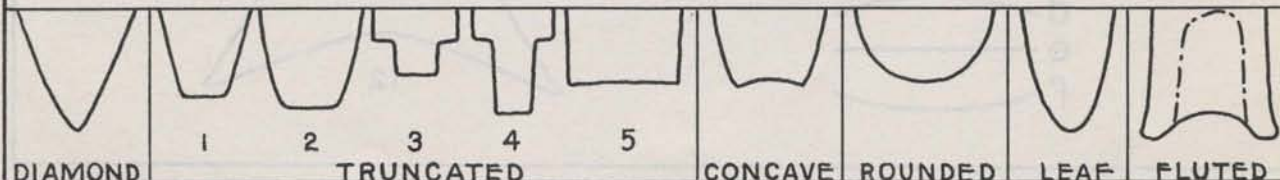
SIDE NOTCHED

BIFURCATED



FLARED

CORNER NOTCHED



DIAMOND

TRUNCATED

CONCAVE

ROUNDED

LEAF

FLUTED

FIGURE 25

CULTURAL SEQUENCE AT THE POTTER POND SITE

William S. Fowler* and Herbert A. Luther

PREFACE

The Potter Pond Site, in southern Rhode Island, discovered in 1945 and subsequently excavated by members of the Narragansett Archaeological Society of Rhode Island under the direction of Herbert A. Luther, has proved unique in the relatively large quantity of steatite (soapstone) sherds and clay potsherds that have appeared in well defined culture strata. Probably, no other site in central New England has yielded comparable evidence, no matter in what amount, with such well defined stratification. The site has added significance by virtue of its undisturbed condition, and probably exhibits many natural characteristics that existed when it was abandoned by the last aboriginal occupants. Examination of the evidence will serve to emphasize the probability of cultural continuity from the time of the site's first settlement down to Colonial contact days. Realization of the site's importance as a contribution to the archaeology of the Northeast has prompted the writing of this report, which is accompanied by extensive illustrations, faithful copies in detail of the original artifacts.

* All illustrations are the work of the senior author.

The series of 1216 recovered artifacts is extensive enough to enable us to make reasonable postulations concerning their relationship through study of their relative vertical distribution. This work has been greatly enhanced by reason of the comparatively heavy deposits of occupational refuse, which have occurred as strata of considerable depth over a large part of the site.

Grateful appreciation goes to Colonel E. St. J. Chaffee, the owner of the land on which the site is located, for his kind permission to excavate in an effort to produce new information concerning the prehistory of the area. Thanks should also be extended to Mrs. Murray Danforth for permitting trespass of her land so that the site could be more easily reached by the workers. During the course of the excavation, valued assistance in excavating was received from many members of the Narragansett Archaeological Society, who gave unsparingly of their time on innumerable occasions, and without whose labors this report could not have been written.

THE SITE

This site is situated in South Kingstown, Rhode Island, on Potter Pond, a salt pond separated from Block Island Sound by a barrier beach and marsh land. On the west side of the pond, about one mile from Block Island Sound, is a small cove backed by a sloping table land surrounded on three sides by low lying hills (Fig. 26). At this location is the site herein described. It was well protected from north and west winds, and could have been used as a year long permanent abode. The presence of adjacent elevations has facilitated to some extent soil erosion, which has left its marks on habitation strata. Continuous rain in wet periods has evidently formed rivulets that in a few places have produced gullies. During excavation, results of this gullying were noticeable in certain sections, especially in the lower part of the shell refuse overburden. Obviously, this

has been one means of intruding artifacts into underlying strata. Fortunately, such water-washed displacement of objects could usually be detected and due allowance made to compensate for it.

Apparently, most of the tableland had been occupied at one time or another, although a strip of rocky soil extending westerly through the center showed little evidence of use, and was accordingly unexcavated. There is no historic evidence of any Colonial use of the site except as a cow pasture. Consequently, no allowance was required for surface disturbance. With the possible exception of picnicking and casual passage over the site of hunters and fishermen, there has been negligible opportunity for the deposit of objects of white manufacture on the surface. Therefore, most evidence

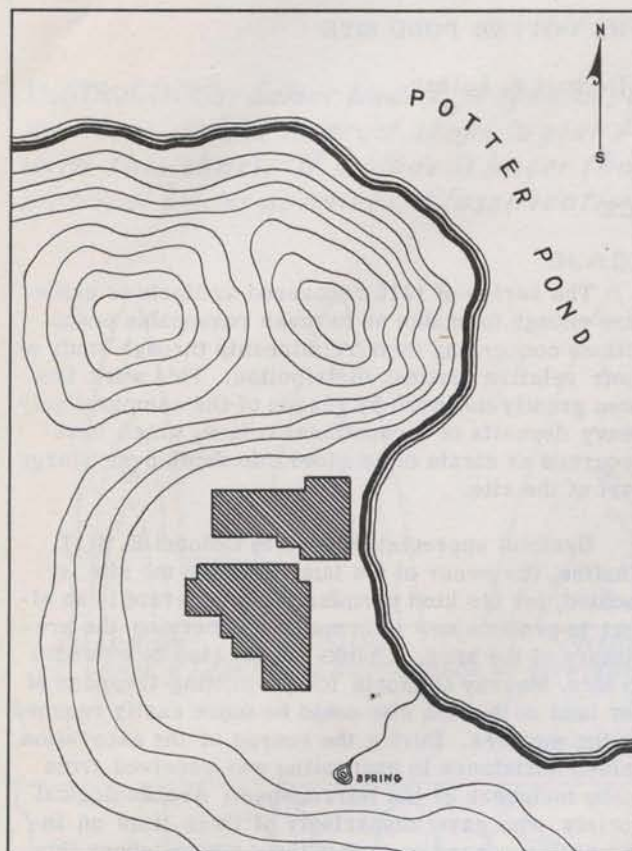


FIGURE 26. General Map of Site; (excavation in shaded areas).

of European contact is thought to have been introduced by the last aboriginal occupants.

Excavation was conducted in an orthodox manner. Grids, two meters square, were laid out from a base line running roughly parallel with, and adjacent to the shore. The work of excavation was accomplished by horizontal troweling of vertical cuts, so that the total depth of artifact-bearing strata was continually in view. Measurements were recorded on specimen cards, giving both the horizontal and vertical position of artifacts, as well as the stratum in which they occurred. After four years of work, approximately 3960 square feet have been excavated, which probably represents the extent of the heaviest concentration of habitation.

STRATIGRAPHY

The site has four artifact-bearing strata that are more or less well defined throughout the plot. A deposit of humus, mostly sterile, 2 to 6 inches deep is underlaid by shell middens that vary from 2 to 52 inches in depth. While this stratum is interspersed

at infrequent intervals with lenses of eroded soil, it is usually compact and well defined. In one or two sections, these lenses evidently have been re-deposited in some way so as to form one layer over another. Allowance for this disturbance has been made in the correlation of evidence. However, for the most part, termination of the shell layer is identifiable at a point where shell refuse becomes crushed. Directly below this level occurs the third stratum, composed of black habitation refuse from which shell deposits are noticeably absent to a large extent. Its thickness varies from 1 to 6 inches, and it is a well defined manifestation over the entire area. Just below it is the fourth stratum of yellow subsoil, 4 to 8 inches deep. This is terminated by coarse gravel and cobbles in which no habitation evidence appears. In general, evidence of occupation is found distributed through the three lower strata, with only a faint trace of contact with Europeans appearing in the humus.

In the yellow subsoil and black habitation layers where artifact content appears to be homogeneous, occur lithic and bone traits that will be described somewhat in detail under the heading: Domestic Traits. However, of primary importance to the study of culture horizons is the presence in these lower strata of quantities of sherds of steatite bowls. No clay potsherds are present in these layers except as they appear at several places with implications of intrusion by means of water gulying, refuse pits, or hearths. Since steatite has higher frequency than any other trait for this early period, it may be considered to have played a leading part in molding the destinies of the people. Therefore, this paper has classified this age under the title: Stone Bowl. Stratigraphically, this culture period is located in the two lower strata, which will be referred to as the lower zone. Since it contains no proven evidence of contemporary ceramics, it may be considered to be preceramic.

Superimposed over it is the shell stratum in which appear shells from oyster, quahaug, conch, scallop, sea-clam, lobster, and mussel. Evidently, a transition period occurs at the bottom of the stratum. This is characterized by crushed shell that varies from 2 to 6 inches in depth. Here is noted the overlapping of some traits from the preceding era. Here also appears the first evidence of ceramics that is typified by potsherds from vessels of the first ceramic period. Throughout the stratum potsherds occur with relatively high frequency, which more than other traits identify the cultural development of this horizon. With them also appears evidence of agricultural pursuits. As a result of these prominent culture manifestations, it seems appropriate to designate the age as Ceramic-Agricultural. Its late stage, in Colonial contact days, extends slightly into the humus, which, together with the shell stratum, will be referred to as the upper zone.

DOMESTIC TRAITS

That a great deal of living has taken place on the site from the time when it first became occupied is evident from quantities of fire stones that are scattered over all levels. Only a few stone hearths were found in place, and these, except in one case, consisted of a number of stones thrown together on one level. Toward the rear of the site a large stone hearth was uncovered in the upper zone with its base extending into the yellow subsoil. It was oval in shape with a total depth of 16 inches. It had a length of about 50 inches with an oval fire pit in the center measuring about 20 by 33 inches. Large and small cobbles that encircled the pit showed the effect of extreme heat, and the surrounding area was laden with charcoal. Two large ash pits were adjacent, and two post molds were discovered each lying about four feet on either side. Directly under the hearth appeared a flat stone paved area of approximately the same dimensions. This may have served as a heat reflector, or as an earlier hearth. An abundance of charred tree branches 2 to 3 inches in diameter was noted beneath this paving, which rested on the subsoil. While no artifacts occurred in connection with the evidence, it seems likely that this hearth assemblage represents the remains of a sweat-house.

In both lower and upper zones, animal and fish bone refuse was in evidence, while shell remains were confined very largely to the upper zone. Apparently, the people of both culture periods depended upon hunting and fishing for subsistence, while in the latter epoch, hunting may have been partially replaced by net and hook fishing and by the taking of shell fish.

Bone implements preserved in the alkaline surroundings are prominent among the artifacts recovered from both horizons. There are 83 specimens in all, including both fractured and perfect pieces. No appreciable trait differences are noticeable between the bone implements from both zones, except that the J fishhook from the upper is not duplicated in the lower zone. Bone material is most heavily concentrated in the black stratum of the lower and in the adjoining crushed shell section of the upper zone. The bone assemblage (Figure 27); consists of narrow awls, ulna awls, small and large needles, drilled ornament, 18 ringed incised headed pin, perforated and grooved end cylindrical beads, J fishhook, marrow scoop, projectile points of antler tines and bone, antler tine flakers, unused antler tines, and implement handles. It is likely that the large needles were used to weave baskets and rush mats. Furthermore, it is possible that two splinters with well-worked points may have been bound to wood stems and used as fishhooks.

In discussing lithic traits, mention should first be made of the six general projectile point types that have been found to include all specimens from the

site. While there is some variation in body styles within each type, some more than others, in the main each follows certain characteristics that have been established as group criteria. So far as cultural sequence is concerned, vertical locations of points within each group seem to indicate coexistence for both small and large except those groups embracing triangular forms (Figure 28). Therefore, excepting triangular points, it seems obvious that trait determinants are to be found in basal similarities and not in sizes. Description of each type seems advisable in order that unified understanding may exist concerning the essential traits on which this paper's suggested nomenclature has been based.

1. Large triangular points are usually equilateral, with straight to concave sides and with a width of more than an inch.

2. Small triangular points are usually equilateral, with straight sides and concave base that is sometimes straight, and with a width of an inch or less. This group contains occasional forms that are isosceles, which are included to satisfy type relationship to this class as suggested by their vertical distribution.

3. Corner-removed forms have wide or narrow proportions, and are identified by the existence of a short or long shank or stem at the base. This is formed by the removal of both basal points. The base is sometimes thinned by reworking, but not always.

4. Side notched points have wide or narrow proportions, and have wide side notches on either side of the base. In narrow points, these notches are scarcely discernible. The base may be thinned by reworking, but it is usually straight with little or no apparent effort having been employed to accentuate basal points.

5. Taper-to-straight-base forms may be pentagonal in shape when all sides are more or less straight. More often however, sides are somewhat convex and taper toward the base that usually is straight, but occasionally may be convex.

6. Eared broad-based shapes have various proportions that are usually restricted in length. Basal points are carefully worked, either rounded or pointed by virtue of side notches and usually a concave base that combine to form what appear to be ears. The base is generally relatively broad, sometimes equaling body width, although in some variations base is not so wide. At times, points may have triangular shapes with only slight side notches close to basal points - called eared triangular by some. (This class also embraces Ritchie's side notched broad based points of his Brewerton Focus, Laurentian Aspect).¹ While wide variation in basal detail

1. Ritchie, 1944.

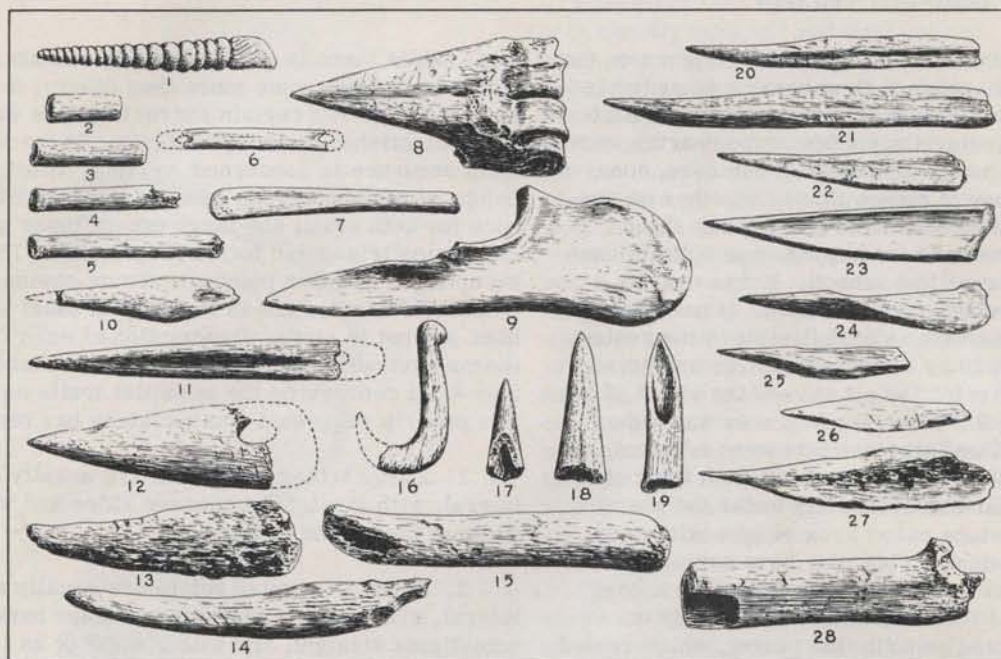


FIGURE 27. Bone Implements. 1, Incised pin; 2, 3, perforated cylindrical beads; 2-6, notched and perforated ornaments; 7, marrow scoop; 8, 9, ulna awls; 10-12, needles; 13, 14, tine flakers; 15, 28, implement handles; 16, fishhook; 17-19, projectile points; 20-27, awls.

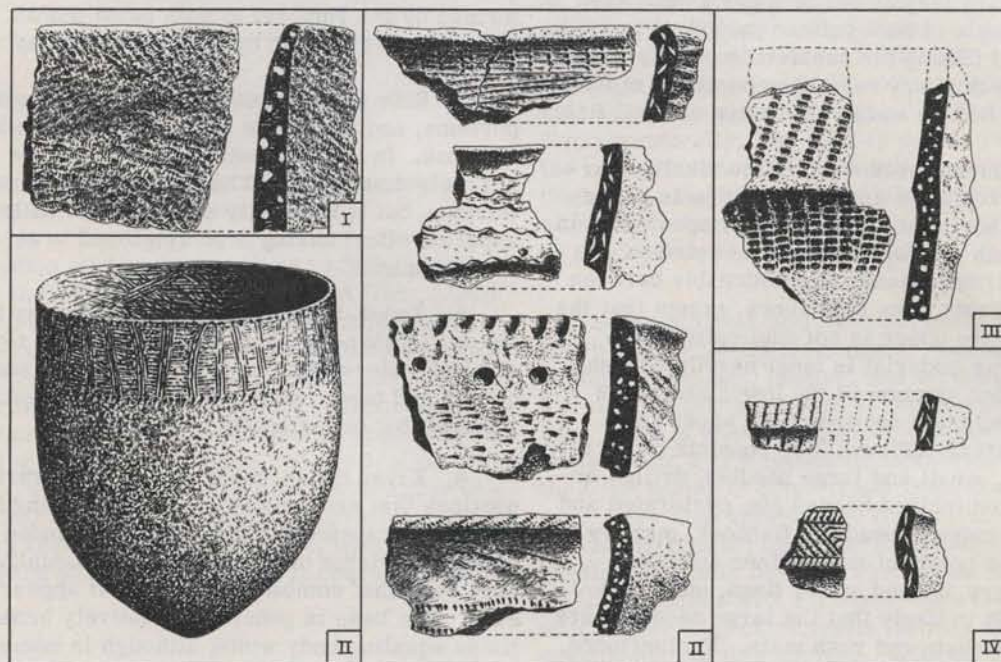


FIGURE 32. Potsherds from Four Ceramic Periods of Development. Restoration of a vessel from early part of the second period is illustrated: (stick wiped interior and cord-wrapped paddled exterior with trailed design).

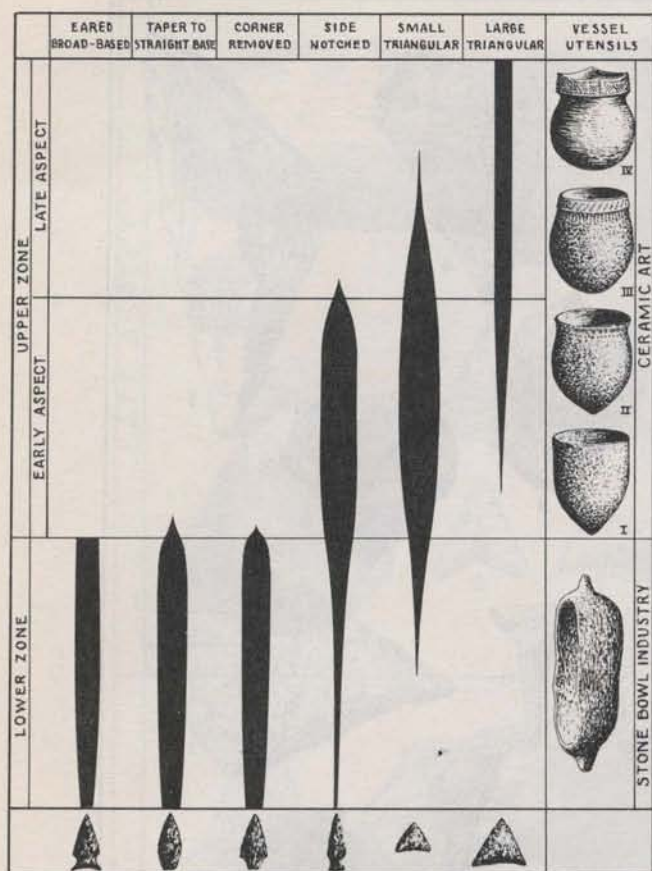


FIGURE 28. Vertical Distribution of Projectile Points and Vessel Utensils. Display of cultural stages of development showing linked projectile point types.

is evident, prominently worked basal points are common to all forms.

Stone implements from the lower zone (Figure 29) include the following: projectile points; viz., eared broad-based (22), taper to-straight-base (24), corner-removed (21), side-notched (7), small triangular 50% isosceles (4); full grooved axes (5); grooveless axes (2); snubnose end scrapers (2); knives with rude stems (8); eared broad-based drills (5); T based drills (2); bone sharpener (1); pebble gorget, imperfectly ground (1); chlorite pipe (1); steatite bowlsherds (67); end picks for steatite working (4); hand gouges for steatite working (2). Negative traits include clay potsherds, grooveless stemmed gouge, ulu, plummet and ground slate point.

Commenting on this assemblage from the site's first horizon, it should be pointed out that it has been clearly identified with the steatite industrial age by the presence of end picks and hand gouges for steatite working, formerly reported from several New England steatite quarry sites excavated.²

2. Fowler, 1945, pp. 95-101; 1947, pp. 146-161.

The chlorite pipe fragment suggests a bowl shape similar to that of some platform pipes from New England.³ Rudely stemmed knives, and eared broad-based points are reminiscent of similar specimens from the Ragged Mountain site of Connecticut, where domestic and industrial traits have contemporaneous deposition.⁴ The gorget is made from a flat pebble but lacks symmetry. Graphite, which is abundant, is indigenous to the region. While a few clay potsherds of the first ceramic period occur in the lower zone, their presence is apparently intrusive as a result of water gulying, hearths, and refuse pits as has already been cited. Those few side-notched points that appear are usually made of shale.

Stone implements from the upper zone (Figure 30) embrace the following: projectile points; viz., large triangular (17), small triangular (30), side-notched (25), corner-removed (3), taper to-straight-base (4); pestle (1); triangular hoes (5); sinew-stones (2); chipped net sinkers (6); tomahawks (2); snubnose end scraper (1); bone sharpener (1); crescent based drill (1); knives with stems (4); grooveless axes (2); ground, symmetrical slate gorget (1); large perforated pendant (1); clay potsherds (880); steatite bowlsherds (13).

A study of the implements from the upper zone indicates to the writer the presence of at least two cultural aspects in this zone. These are identified as Early and Late, as is indicated in (Figure 30). In the early stage there appear marked signs of trait overlapping from the lower zone, noticeably in respect to gorget, grooveless ax, rudely stemmed knife, bone sharpener, graphite, and projectile point types, viz., taper-to-straight-base and corner-removed whose frequency is too low to deserve more than brief mention. Furthermore, 16% of the sherds of steatite bowls are found in this horizon, located for the most part in the crushed shell deposit. In some cases, however, their presence may be intrusive as a result of what appears to be redispersion of refuse from the lower zone to produce double layers at certain points where some of them appeared. Nevertheless, since evidence of steatite does not persist beyond the early crushed shell level, and there is no accompanying tools for working steatite, it cannot be said to be an industrial manifestation of the upper horizon. Attention should be called, particularly, to the origin of side-notched and small triangular points in the lower zone and to their apparent wide popularity and general use by the people of the upper (Figure 28).

Colonial traits from the humus layer of the upper zone consist of unperforated iron ax, gun flint, British copper coin, dated 1752, glass fragment from spectacles, old style scissors, hammered strip of copper, glazed brown pottery sherds of two kinds

3. Willoughby, 1934, p. 89.

4. Fowler, 1949.

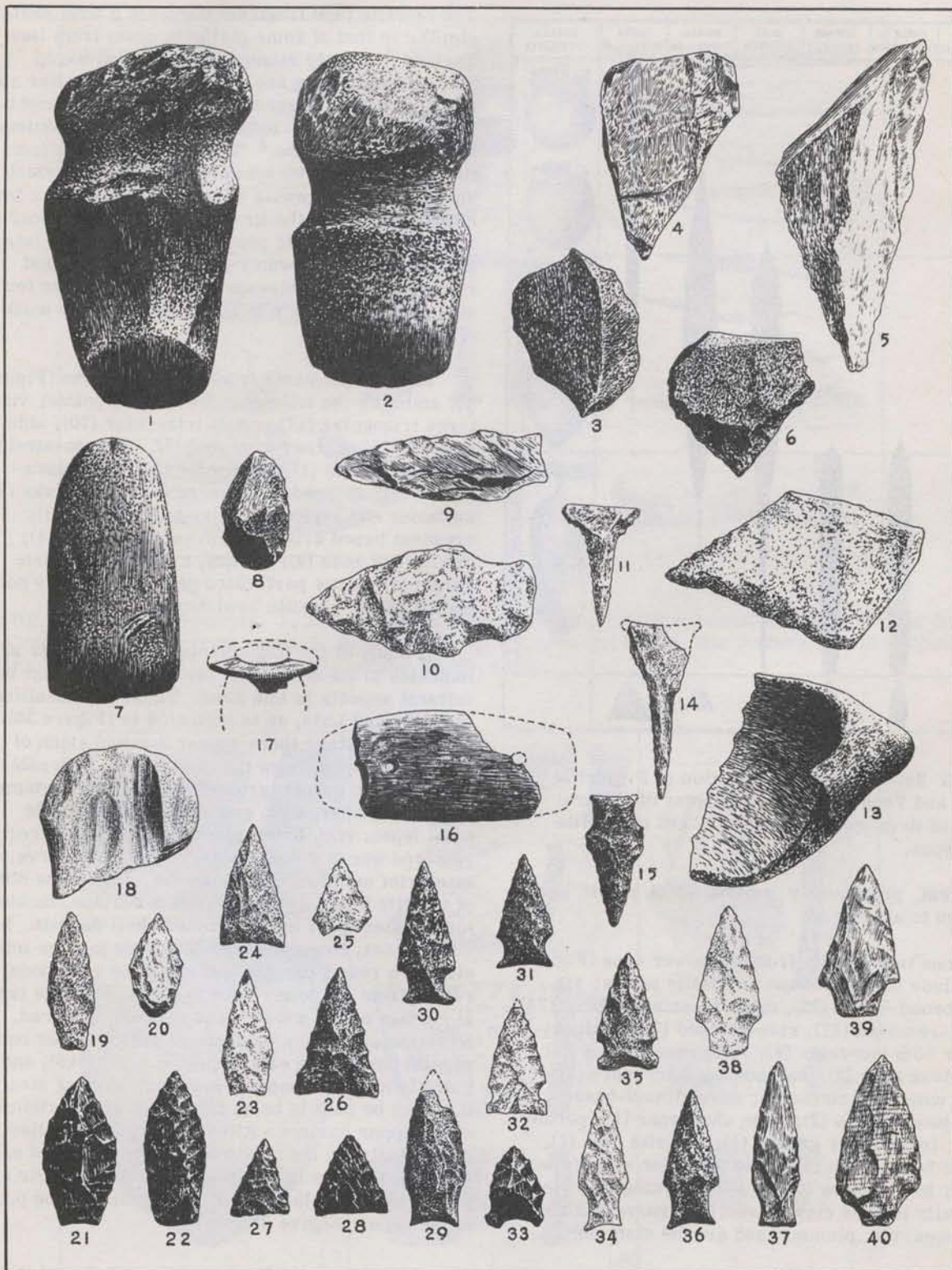


FIGURE 29. Lithic Traits, Stone Bowl Occupation. 1, 2, Full grooved axes; 3, hand gouge; 4-6, end pick (steatite industrial tools); 7, grooveless ax; 8, end scraper; 9, 10, rudely stemmed knives; 11, T based drill; 12, pressure flaker; 13, section of steatite cup; 14, 15, eared broad-based drills; 16, gorget; 17, chlorite pipe; 18, hone; 19-23, taper to-straight-base points; 24, 25, small triangular points; 26-36, eared broad-based points; 37, side notched point; 38-40, corner-removed points. Scale - 3/4.

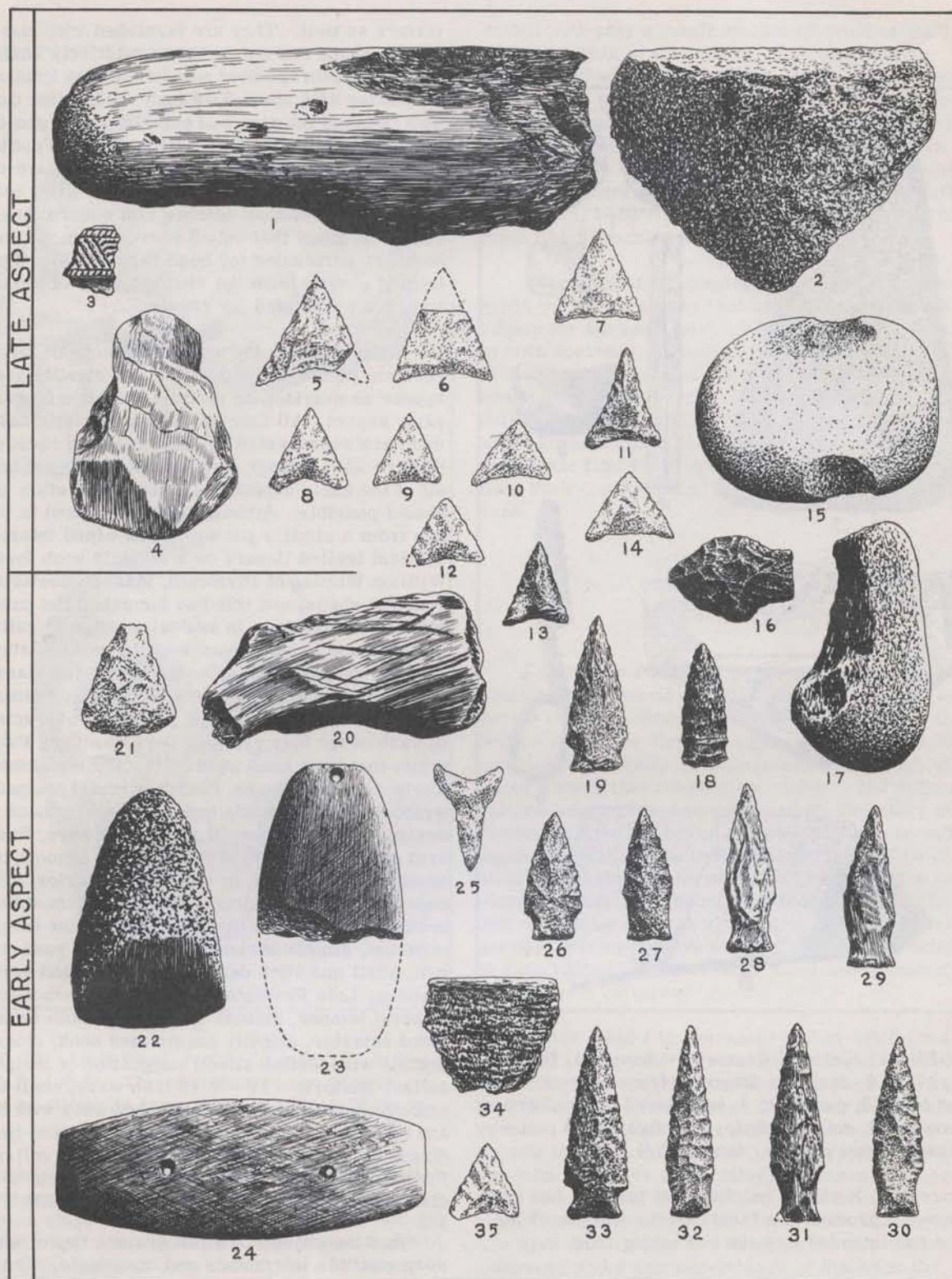


FIGURE 30. Lithic Traits, Ceramic-Agricultural Occupation, (approximate vertical distribution). 1, Pestle; 2, triangular hoe; 3, clay potsherd, period IV; 4, sinewstone; 5-7, large triangular points; 8-14, 35, small triangular points; 15, netsinker; 16, stemmed knife; 17, tomahawk; 18, 19, 26-33, side notched points; 20, hone; 21, end scraper; 22, grooveless ax; 23, pendant, 24, gorget (ground slate); 25, crescent based drill; 34, clay potsherd period I. Scale - 3/4.

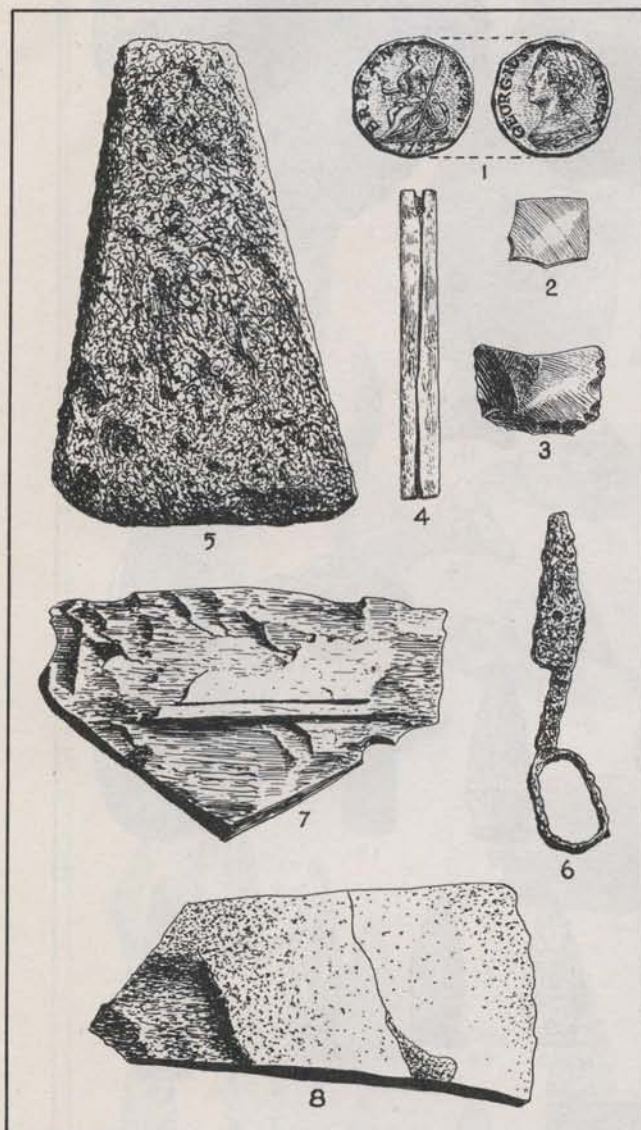


FIGURE 31. Colonial Contact Evidence. 1, British coin, 1752; 2, eyeglass fragment from a square cornered lens; 3, gun flint; 4, hammered strip of brass; 5, iron ax; 6, scissor blade; 7, rough brown pottery; 8, glazed brown pottery. Scale - 3/4.

(Figure 31). It should be cited that the coin has been battered to produce flat facets on its edge, as if the owner had intended to make something from it.

Utensils from the lower zone, are represented by steatite sherds, from kettles, storage bowls, platters and cups. Not enough sherds occurred to make restoration of any one vessel possible, but large sections of several were completed with contiguous pieces. Kettles have thick walls, always with smooth finished interiors and sometimes ex-

teriors as well. They are furnished with lugs, are oval in shape and appear to be relatively shallow. One small storage bowl was beautifully finished both sides with about 3/16 inch walls. One cupsherd with finished interior and exterior had a projecting pointed lug for a handle, similar to the Westfield Quarry style. All told, about 15 vessels are represented by the 80 bowlsherds from the site, and a number of them have notched rim decorations. It should be noted that only 3 sherds from the lower zone are perforated for bowl repair, while 6 overlapping sherds from the crushed shell of the upper zone are perforated for repair.

Utensils from the upper zone consist largely of ceramic potsherds, although a few steatite sherds appear as overlapping on trait evidence from the early aspect. All four periods of ceramic development are represented by the recovered sherds (Figure 32). Enough clay sherds of one pot from a pit of the early aspect has made restoration of the vessel possible. Although the base sherd is missing, one from a similar pot with stick wiped interior and vertical trailed linears on a straight neck found by William Whiting of Plymouth, Massachusetts has a conoidal shape, and this has furnished the pattern for the restoration. In analyzing pottery traits from the site, use has been made of the nomenclature and four period grouping as suggested by the Massachusetts Archaeological Society.⁵ Briefly, Potter Pond rim sherds have traits that resemble characteristics of each of the four ceramic periods. Only those traits that have been identifiable are mentioned. Early - I - thick ware, coarse mineral temper, cord-wrapped paddled inside and out, straight neck with no design; Intermediate - II - 1/4 inch ware, fine mineral or shell temper, stick-wiped or smooth interior, smooth, stick-wiped, or maleated exterior, conoidal base, straight sometimes insloping to constricted neck, rim often with lip, body in one case deeply undercut, simple horizontal designs by push-and-pull, shell and stick dentate, punctate, and vertical trailing; Late Prehistoric - III - 1/4 inch ware, fine mineral temper, smooth interior, smooth or maleated exterior, slightly constricted neck, closed in dentate with platted effect, suggestion of incipient collar; Historic - IV - 3/16 inch ware, shell temper, smooth inside and out, constricted neck with collar and sometimes slight castellations, incised linear diagonals between horizontal borders on collar. From the 880 potsherds recovered, 48 pots with individual design elements have been identified.

Burials consist of three graves, two of which were multiple interments and one single. The first multiple grave contained a female adult about 35 years of age and a child of about 6 years. The skeletons were flexed, and the adult was superimposed over the child. Both skulls were fractured but not to such an extent as to prevent restoration. Illustration is shown of the adult skull only, since both

5. Fowler, 1948a, pp. 4-6.

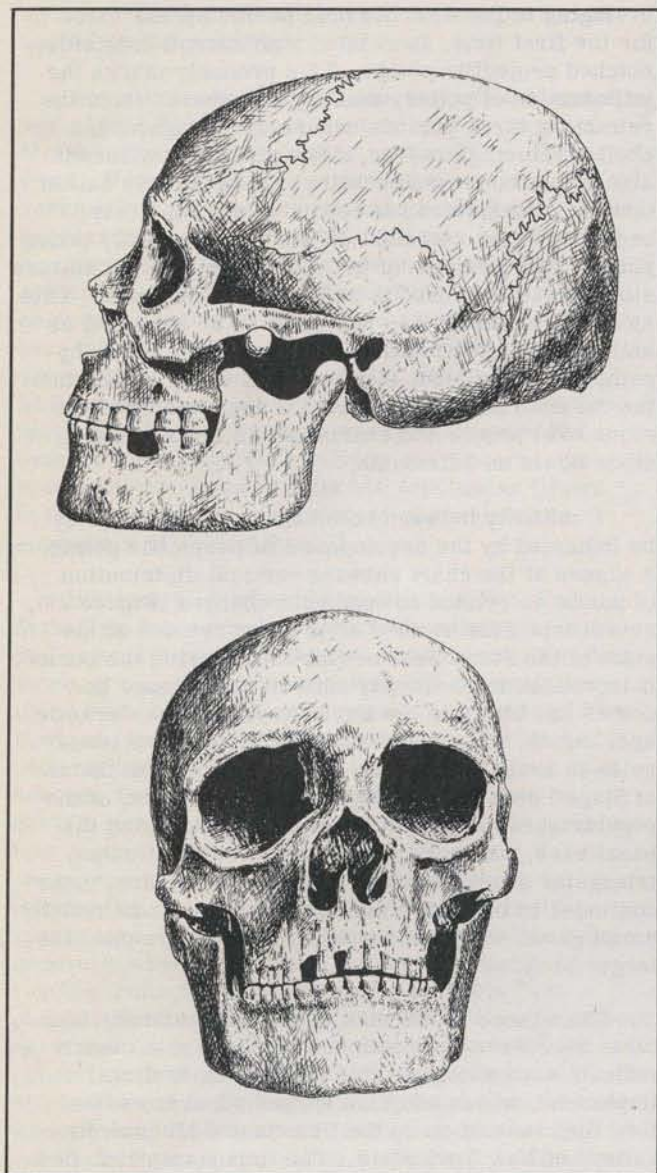


FIGURE 33. Adult Skull, (cephalic index, 74.6; H-L, 78.9; H-B, 105.7). This dolichocephalic type is common to all skulls from the site that could be restored.

are dolichocephalic (Figure 33). The second multiple contained two adults of middle age, one of which was a female, a child of about 6 years of age, and one dog placed near by. Adult skeletons were flexed and laid together with crania of each resting on a stone support. Skeletal material was badly deteriorated which prevented further study. The third grave contained the remains of a 5 or 6 year old child in flexed position whose skull was later restored and found to be also dolichocephalic. Grave shafts were covered with loose cobbles about 15 inches deep in the shell stratum. Grave fill appeared to consist of subsoil

mixed with only a small amount of crushed shell, but with whole shells absent. The shafts were surrounded with large cobbles, some weighing as much as 75 pounds. No grave goods accompanied these several interments except a piece of iron pyrites that rested on the knees of the adult in the first multiple burial. The average measurements of all three restored skulls are as follows: cephalic index - 75, vault H-L - 80, and H-B - 106.5. The teeth of both female adults were badly worn.

Petrology of implements from both zones reveals the use of stones that are indigenous to the region for the most part. White quartz is common to both horizons, as well as variously grained felsite and a small amount of quartzite. Greenish shale appears more often in the lower zone. Flintly dull gray coarse grained stone occurs in both zones, while greenish gray flint that closely resembles Cocksackie flint from the Hudson River Valley of New York State makes its appearance in the upper zone.

CONCLUSIONS

The Potter Pond site has revealed several unusual cultural manifestations that will become apparent as the evidence is analyzed. But first, attention should be directed toward the stratigraphic evidence that draws an unmistakable, although at times a wavy line between two distinct and different culture economies, one preceramic, the other ceramic. Just as the latter derives its name from the dominant economic activities of the period, so it would seem that the former should also derive its name from its most prominent industrial activity, that of making stone bowls from steatite. Consequently, this author has deemed it proper to refer to each respectively, as Stone Bowl and Ceramic-Agricultural cultures.

Potter Pond I is characterized by artifacts taken from the lower zone that includes subsoil and the overlying black habitation stratum. Since steatite bowlsherds have far greater frequency in this zone than any other trait of the period, it seems safe to hypothesize that the steatite industry exercised a powerful influence over cultural advance of those days. No doubt it elevated domestic living and placed a seal of cultural progress upon this inventive age. Innovations in stone implements were numerous and a new assemblage of tools for the manufacture of stone bowls was invented. Diagnostic lithic traits of the period that seem most characteristic are: projectile point forms, viz., eared broad-based (including Ritchie's eared triangular and side notched broad based styles), taper to-straight-base, and corner-removed; full grooved ax; rudely stemmed knife; eared broad-based drill;

asymmetrical gorget from pebble; T based drill; chlorite pipe; steatite stone vessels; tools for working steatite, namely, end pick and hand gouge.

There are, however, certain important traits that are absent, viz., ulu, plummet, and grooveless stemmed gouge. In certain other stratified sites these traits appear below Stone Bowl evidence, and seem to be diagnostic of an earlier cultural complex. This earlier occupation has been referred to variously as Early Archaic, or as (Eskimo-like). To illustrate, it is known that the Alaskan Eskimo uses an individual fishline sinker with modified proportions to a plummet. This is used as a base to which are attached fishhooks, according to Willoughby, and sometimes is baited and used as a fish lure. Now, since Potter Pond is believed to have been a fishing site, the absence of the plummet, if it was used as a fishline sinker or lure, seems all the more impressive as a possible indication that the trait does not belong to the Stone Bowl culture. It might, therefore, be assumed that occupants of this culture horizon may not have been the racial descendants of the earlier northern migrants, and used methods other than the plummet for catching fish. Of course, this hypothesis cannot be fully justified since it is based on negative evidence only. However, it supports the belief that the Stone Bowl occupation was an intrusive migration with a different racial provenience from that of the so called Eskimoid, and with many new traits.

Potter Pond II (Ceramic-Agricultural culture) is identified with artifacts that come from the upper zone, composed of an overburden of shell middens and humus. Since clay potsherds are more plentiful than any other trait, it is probable that this age was largely influenced by ceramic art. Recovery of pestle and triangular hoe traits have provided evidence of agricultural affiliations with dual economic interests thus suggested. Significant traits that seem to be the most diagnostic for the period are: projectile point forms, viz., side-notched, small triangular, large triangular; ground slate gorget; large perforated pendant; crescent based drill; chipped net sinker; sinewstone; pestle; triangular hoe; clay pottery. Apparently, this was an age in which fishing dominated the economy with wide use of the net and bone fishhooks. Long side-notched narrow spear points are common, and it is thought they may have been used for spearing large fish.

Of chief importance is factual evidence that appears in the lower section of the shell stratum, where shells are crushed and frequently mixed with black deposit refuse from the underlying black stratum. This area probably holds the story of economic changes that took place in the transition from stone bowls to clay pots. Since steatite finishing tools are found only in the lower black stratum, there is reason to believe that few stone bowls were made in the transitional period. Instead, clay potsherds of thick,

coarse mineral tempered ware, maleated both sides belonging to the first ceramic period appear there for the first time, associated with narrow long side-notched projectile points. This probably marks the introduction of pottery making with sherds from the remaining three periods occurring throughout the shell stratum. However, a few steatite bowlsherds also come from the crushed shell, but nearly half of them are perforated for repair strapping. This seems to throw new light on what was probably taking place. With adoption of the new clay ware, old culture stone bowls continued to be used until damaged. This stone ware that by then had come to be regarded as antique was often repaired by strapping. If this hypothesis is accepted, then it seems to the author that the ceramic potters were racial descendants of the stone bowl people and cherished the few remaining stone bowls as heirlooms.

Continuity between both economic periods may be indicated by the development of projectile points. A glance at the chart showing vertical distribution of points as related to economic changes (Figure 28), reveals the side notched style in sparse use at the start of the Stone Bowl occupation. During the period, it increases in popularity until its acceptance becomes full blown in the Early Aspect of the Ceramic age. Again, the small triangular style, often isosceles in shape, apparently had its adoption at the end of Stage I as a natural development, no doubt, of the popular eared broad-based style. By dropping the basal ears, which may have ceased to be of value, triangular shapes remained. For many years, these continued to be made small probably to accommodate small game, while side notched points were used for larger prey.

Then there is the case of the triangular agricultural hoe.⁷ Several specimens from the site clearly indicate a knowledge of this popular agricultural implement, whose adoption spread all over central New England and on up the Hudson and Mohawk River valleys of New York State. The important point, however, is its implied link to the Stone Bowl industrial age. As has been shown in the reference, what is thought to be a type specimen of the original invention in the form of a heavy triangular tailing breaker from the Wilbraham steatite quarry of western Massachusetts, may prove to be a link between the two cultures. It would then follow that cultivating triangular hoes of a later date are inspired adaptations of steatite quarry tailing breakers of the Connecticut Valley of Massachusetts, in which area the invention has been isolated.

CORRELATIONS

At Potter Pond, two cultural stages have been defined with racial continuity a probability. It

7. Fowler, 1948b, pp. 84, 85.

remains to be shown to what extent they seem to equate with other postulated cultures of the locality and adjoining regions.

Somewhere between Willoughby's Old Algonquian and Algonquian Group in General will be found material traits that are similar to those from Potter Pond. However, as the latter group contains both ceramics, bone implements and grooved axes, while the former is accredited with gorgets, pendants, platform pipes and steatite bowl manufacture, it is evident that Potter Pond stratigraphic data clashes on several counts. Grooved axes are now found to be a trait of the stone bowl culture, which also shares bone implements with the ceramic culture, while gorgets are also common to both. Nevertheless, allowing for these points of difference, Willoughby's Old Algonquian Group most nearly embraces Potter Pond I, while his Algonquian Group in General with its development of ceramics is suggestive of Potter Pond II.

William A. Ritchie's evaluation of New York State Pre-Iroquoian cultures deals with wide areas and extensive shifts of culture movements. Furthermore, it should be remembered that mountain barriers separate New York regions from those of New England, and would tend to prevent swift diffusion of cultural ideas. However, certain similarities exist between Potter Pond culture traits and those of certain New York cultures. Ritchie's Early Laurentian Aspect, which embraces his Frontenac Focus seems to come the closest to Potter Pond I, for it is here that steatite bowlsherds make their first appearance. However, plummet, ground slate point, grooveless stemmed gouge and ulu are Early Laurentian traits that are absent in the site's first period. Furthermore, Ritchie's Early Coastal Aspect has some traits that equate, viz., full grooved ax and gorget; as well as the eared triangular and side notched broad based projectile forms of his Laurentian Aspect. Nevertheless, inclusion of ceramics in the Early Coastal as well as in the later Laurentian leaves much to be desired in the way of a clear line of separation between stone bowl industrial activity and ceramic art. So far as is known, no steatite industrial finishing tools have been reported as appearing in any New York culture. Without this evidence, the point where steatite industrial activity stops and overlapping of steatite traits into ceramic art begins cannot be properly determined. Undoubtedly, cultural contact of some kind existed in early days with peoples living over the mountains to the west, and it is hoped, as new evidence appears, that this problem may eventually be resolved. For Potter Pond II, Ritchie furnishes several interlocking cultures that contribute to the ultimate ceramic development of his Owasco Aspect, followed by the Iroquoian. That diffusion of much of this development found its way east although somewhat retarded, and left its mark upon New England cultures is very probable. In no case, however, did it succeed in

completely replacing the originality of the eastern potters.

Similar problems to these arise when equation is attempted with New Jersey cultures, as delineated by Dorothy Cross.⁸ Her Red Valley early culture has some traits in common with Potter Pond I, such as the grooved ax and eared broad-based drill, while her Rosenkrans Ferry recent cultural stage is predominantly ceramic in keeping with the site's last stage. However, Red Valley contains both ulu and grooveless stemmed gouge that are absent in Potter Pond I, while more confusion develops by Cross's inclusion of clay pottery. Not enough steatite bowlsherds have occurred on New Jersey sites according to Cross to make steatite a diagnostic trait. As in the case of New York, the absence of steatite industrial tools from New Jersey sites is noticeable and without them, a clear culture division between steatite industrial activity and ceramic art seems unattainable.

Potter Pond's cultural stages appear to fall within a suggested chronological cultural sequence suggested for Pennsylvania by John Witthoft.⁹ Its Late Archaic Period, or prepottery age, in which steatite vessel utensils first make their appearance, has much in common with Potter Pond I. Besides its stone bowl trait it embraces a projectile point style reminiscent of the eared broad-based type of this period. Also there is agreement that the side-notched type makes its entrance at this time. However, copper tools of this age in Pennsylvania are absent from Rhode Island so far as evidence is now available. Suggested dating for this period of 500 B. C. - 500 A. D. seems too early and extensive. Instead, 1 - 500 A. D. would seem to fit the steatite industrial period of New England somewhat better.

Pennsylvania's Early, Middle and Late Woodland Periods in which pottery is introduced and developed to its final stage probably represents a similar span of time to that of Potter Pond II. Suggested dating for the period is 500 - 1600 A. D.

Finally, evidence from the Ragged Mountain site in Connecticut coincides with Potter Pond's two cultural stages. At this steatite quarry-shelter, stratigraphy shows ceramic evidence superimposed over stone bowl industrial and domestic material. The most prominent projectile point style of the lower zone is the same eared broad-based form as at Potter Pond. Similarly, finishing end picks and hand gouges for working steatite are common to both sites. This site furnishes valuable comparison and lends much weight to postulated cultural sequence at Potter Pond.

The foregoing discussion would seem to strengthen the hypothesis that prehistoric central New England

8. Cross, 1941.

9. Witthoft, 1949.

was occupied in the beginning of the Christian era by people who through their inventive ability discovered ways of making stone bowls out of steatite. That they may have been an intrusive racial migration that took over and replaced whatever economy they found in the region, now seems tenable. While a few existing cultural traits were probably accepted and modified, most of them undoubtedly were rejected and replaced with new ones. Factual evidence supports the belief that a fast developing, well controlled economy became the driving force back of the culture. So rapid was its acceptance by adjacent peoples that it spread to regions outside New England wherever steatite

outcrops were found. It is probable that even trade in stone bowls was carried on with peoples who lived at greater distances. Existing evidence now reveals that it may have been the stone bowl people who first received the knowledge about ceramics and agriculture which they developed, and that these new activities swiftly replaced the former steatite industry in which vessels were made out of stone.

Attleboro, Massachusetts
February 12, 1950

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